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DATE: March 28, 2008	SERIAL NO.: 10/664,707
TO: Examiner Qing Wu	COMPANY: United States Patent and Trademark Office
FROM: W. Allen Powell	(281) 970-4545; Extension: 120
FACSIMILE NUMBER: (571) 273-3776	NUMBER OF PAGES INCLUDING THIS COVER PAGE: 9
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NOTES/COMMENTS:

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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	§	Confirmation No.:	6814
Michael R. Krause et al.	§		
	§	Group Art Unit:	2195
	§		
Serial No.:	§	Examiner:	Wu, Qing
10/664,707	§		
	§	Examiner Fax:	(571) 273-3776
Filed:	§		
September 18, 2003	§	Atty Docket:	200311239-1
	§		NUHP:0138/FLE/POW
For: Method and Apparatus for	§		
providing notification via multiple	§		
completion queue handlers	§		
(Amended)	§		

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

CERTIFICATE OF TRANSMISSION OR MAILING  
37 C.F.R. 1.8

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March 28, 2008

Date

Joan Deasy

Sir:

**RESPONSE AND AMENDMENT**

As discussed with the Examiner on March 18, 2008 and in various subsequent interviews, the Applicants are providing the following Response and Amendment to place the application in condition for allowance.

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**AMENDMENT TO THE SPECIFICATION**

Please replace the title with the following amended title:

Method and Apparatus for Providing Notification Via Multiple Completion Queue Handlers

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### IN THE CLAIMS

The text of all pending claims, along with their current status, is set forth below:

1. (Currently amended) A notification ~~system mechanism~~, comprising:  
one or more processors;

a plurality of completion queue handlers associated with a communication device,  
wherein a verb returns a number of the plurality of completion queue handlers  
that are associated with the communication device, each of the plurality of  
completion queue handlers associated with a process associated with a processor  
of the one or more processors; and

at least one completion queue associated with each one of the plurality of completion  
queue handlers, wherein each of the plurality of completion queue handlers are  
segregated to target a specific one of the one or more processors, and wherein  
the segregation of the plurality of completion queue handlers is adapted to  
reduce cache line invalidation, cache line eviction, and/or unnecessary memory  
bus overhead associated with synchronization of accesses to ~~the memory~~  
memory locations used by the plurality of completion queue handlers.

2. (Canceled)

3. (Currently amended) The notification ~~mechanism~~ system set forth in claim  
[[2]] 1, wherein each of the plurality of completion queue handlers generates an interrupt to the  
processor associated with the process,

4. (Currently amended) The notification ~~mechanism~~ system set forth in claim 1,  
wherein a verb modifies an association of the at least one completion queue associated with at  
least one of the plurality of completion queue handlers.

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5. (Currently amended) The notification ~~mechanism~~ system set forth in claim 1,  
wherein a verb creates the at least one completion queue associated with at least one of the  
plurality of completion queue handlers.

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6. (Canceled)

7. (Currently amended) The notification ~~mechanism~~ system set forth in claim 1, wherein each of the plurality of completion queue handlers are associated with at least one completion queue through a completion queue handler identifier.

8. (Currently amended) A network, comprising:

a plurality of systems;

a switch network that connects the plurality of systems for communication; and

at least one of the plurality of systems, wherein the at least one of the plurality of systems comprises:

one or more processors;

a communication device having a plurality of completion queues and a plurality of completion queue handlers, wherein a verb returns a number of the plurality of completion queue handlers that are associated with the communication device; and

at least two completion queue handlers associated with the communication device, wherein each completion queue handler is associated with one of a plurality of processes and associated with at least one of the plurality of completion queues, wherein a first of the at least two completion queue handlers is associated with one of the plurality of processes and a second of the at least two completion queue handlers is associated with another of the plurality of processes, wherein each of the at least two completion queue handlers are segregated to target a specific one of the one or more processors, and wherein the segregation of the at least two completion queue handlers is adapted to reduce cache line invalidation, cache line eviction, and/or unnecessary memory bus overhead associated with synchronization of accesses to the memory memory locations used by the at least two completion queue handlers.

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9. (Canceled)

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10. (Canceled)

11. (Currently amended) The network set forth in claim [[10]] §, wherein the first of at least two completion handlers communicates a first interrupt to a first processor associated with one of the plurality of processes and the second of the at least two completion handlers communicates a second interrupt to a second processor associated with another of the plurality of processes.

12. (Currently amended) The network set forth in claim [[10]] §, wherein a verb modifies the association of the first of at least two completion handlers with one of the plurality of processes.

13. (Original) The network set forth in claim 8, wherein the at least two completion handlers reside in memory in the communication device.

14. (Currently amended) The network set forth in claim 8, wherein the at least two completion handlers reside in memory of at least one of the plurality of systems that is external to the communication device.

15. (Currently amended) A method for providing notification to a plurality of processes, the method comprising the acts of:

executing a plurality of processes on a plurality of processors;

creating a plurality of completion queues on a communication device, each of the plurality of completion queues associated with at least one of a plurality of completion queue handlers that are associated with the communication device, wherein each of the plurality of completion queue handlers are associated with one of the a-plurality of processes, wherein the plurality of completion queue handlers are segregated to target a specific one of the plurality of processors, and wherein the segregation of the plurality of the completion queue handlers is ~~adapted~~ to reduce cache line invalidation, cache line eviction, and/or unnecessary

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memory bus overhead associated with synchronization of accesses to the memory memory locations used by the plurality of completion queue handlers; issuing a verb to return a number of the plurality of completion queue handlers that are associated with the communication device;

placing a completion queue entry on one of the plurality of completion queues;

invoking one of the plurality of completion queue handlers associated with the one of the plurality of completion queues; and

notifying the one of the a plurality of processes associated with the one of a plurality of completion queue handlers.

16. (Canceled)

17. (Canceled)

18. (Currently amended) The method set forth in claim 15, wherein the notification comprises the one of ~~[[a]]~~ the plurality of completion queue handlers sending an interrupt to one of ~~[[a]]~~ the plurality of processors.

19. (Original) The method set forth in claim 15, comprising issuing a verb to create one of the plurality of completion queues.

20. (Currently amended) The method set forth in claim 15, comprising modifying an association with the at least one of the plurality of completion queue handlers queues through the issuance of a second verb to modify the association of at least one of the plurality of completion queues with at least one of a plurality of completion queues.

21. (Original) The method set forth in claim 15, wherein the creation of the plurality of completion queues comprises defining each of the plurality of completion queues in a memory.

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### **REMARKS**

The Applicants thank the Examiner for indicating the allowable subject matter in the present application during the Examiner-initiated interview conducted on March 18, 2008. As requested by the Examiner on March 28, 2008, the Applicants are submitting the present proposed amendments to reflect the features discussed during the initial Examiner-initiated interview and subsequent interviews.

As requested by the Examiner, the Applicants have amended the title to "Method and Apparatus for Providing Notification Via Multiple Completion Queue Handlers."

Claims 1, 3-5, 8, 11, 12, 14, 15, 18, and 20 are presently amended. Independent claim 1 has been amended to incorporate features from claims 2 and 6. Independent claim 8 has been amended to incorporate features from claim 10 and to include a recitation relating to a functional feature of the network for returning a number of completion queue handlers associated with a communication device. Independent claim 15 has been amended to incorporate features from claims 16 and 17. Additionally, Applicants have canceled claims 2, 6, 9, 10, 16, and 17. Accordingly, claims 1, 3-5, 7, 8, 11-15, and 18-21 remain currently pending.

### **Conclusion**

Again, Applicants thank the Examiner for indicating the allowable subject matter in the present application. In view of the amendments and remarks set forth above, the Applicants respectfully request allowance of all pending claims. If the Examiner believes that

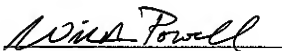


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a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Date: March 28, 2008



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